FIRE ISLAND NATIONAL SEASHORE
5TH BIENNIAL SCIENCE AND CULTURAL RESOURCE CONFERENCE

ABSTRACTS FOR THE WILDLIFE MANAGMENT SESSION, TUESDAY, APRIL 5, 2005, 2:00 – 5:00 PM

Presenting authors are indicated by bold text

PIPING PLOVERS ON LONG ISLAND, NY: POPULATION TRENDS, HABITAT AND MANAGEMENT NEEDS

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Piping Plovers (*Charadrius melodus*) on Long Island, NY are part of the Atlantic Coast Population and are protected and managed as State Endangered and Federally Threatened species. Piping plovers nest on open sandy/cobble beaches with no to sparse vegetation. This habitat is also preferred for recreational and development use by humans. This conflict led to declines in plover populations and the need to protect and manage piping plover nesting areas. The New York portion of the plover population has recovered somewhat since management and protection efforts were put in place in the late 1980s, but they are still at risk. There is much that can be done to further protect the plover nesting areas on Long Island and especially along the South Shore. Piping Plovers face an increasing number of threats from habitat loss to erosion and sea level rise, increased recreational demands for beach areas, and overly vegetated nesting areas. They also face numerous threats from predators such as crows, gulls, raccoons, rats, dogs, fox, and increasingly feral cats.

A MULTIPLE SCALE ANALYSIS OF PIPING PLOVER (*CHARADRIUS MELODUS*) ABUNDANCE AND PRODUCTIVITY ON BARRIER ISLANDS OF NEW YORK

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The National Park Service (NPS) is obligated under the Endangered Species Act (1973) to protect federally listed species from jeopardy or loss. For NPS lands on New York's barrier islands, this obligation extends to the federally endangered piping plover (*Charadrius melodus*). The management efforts of the NPS and other land managers are producing positive results, as reflected by the steady increase in the New York plover population since listing in 1986. However, concern is mounting over the recovery success

due to the increasing failure of nest exclosure structures. Nest exclosures represent a short-term solution and failed to address more sustainable, large-scale/long-term conservation actions. The large-scale/long-term approach is lacking in most plover management throughout the Atlantic Coast, highlighting a lack of knowledge regarding the relationship between plover ecology and broad environmental scales.

This missing broad-scale knowledge is the target of my proposed research. My multiple scale approach explicitly examines broader scales than previously observed and will allow me to examine ecological patterns over a broad range of scales from nest site to landscape. My on-going study will exhaustively sampled plover and environmental data and derive models that explain the distribution, abundance, and productivity of plovers based on environmental patterns at multiple spatial scales. Through this work, I will define the relationship between scale and landscape pattern on the Long Island barrier islands. My results will contribute to piping plover recovery efforts throughout the barrier island system, including Fire Island National Seashore.

AVIAN VAGRANCY TO THE LIGHTHOUSE TRACT OF FIRE ISLAND NATIONAL SEASHORE: HISTORY, HIGHLIGHTS, AND BIOLOGICAL SIGNIFICANCE

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Avian vagrancy has long fascinated naturalists and biologists. The extralimital occurrence of migratory birds has received widely disparate interpretations from ornithologists, some of whom have regarded these events as meaningless accidents of nature, whereas others have presented evidence that they can be robust indicators of demographic trends within species' core populations. The Lighthouse Tract of Fire Island National Seashore occupies a unique position with respect to avian vagrancy in eastern North America, as the site of a disproportionate number of exceptional records, from William Dutcher's 19th Century collections through our own studies 1969-present. Here we discuss historical patterns of avian vagrancy to Fire Island in relation to other migratory stopover sites in eastern North America, and we present evidence that these patterns offer insights into important biological processes, including longterm shifts in birds' geographical distributions and the geographical properties of vector-borne diseases.

ECOLOGICAL DYNAMICS OF A RARE MARITIME AMERICAN HOLLY FOREST

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The Sunken Forest is one of only two known locations of maritime American holly forest. Monitoring of permanent vegetation plots within the Sunken Forest over the past 35 years indicates that although the overstory structure and composition have changed minimally, the understory (shrubs and herbs) is decreasing in cover and diversity. An age distribution of the forest indicated a lack of establishment by canopy species since the 1970s. No recent changes in the frequency of canopy disturbances were evident in a tree core analysis. We compare these trends to those occurring within the Sandy Hook holly forest, Gateway National Recreation Area, New Jersey. The dynamics were different, with numerous new holly stems establishing over the past 15 years and little change in the forest understory at Sandy Hook. While white-tailed deer exceed 50 deer km^{-2} within the Sunken Forest, few individuals are observed at Sandy Hook.

We report the difference in vegetation dynamics observed in plots that have been fenced to white-tailed deer for 16 years. Using additional short-term exclosures, we assessed the interactions of multiple herbivores and canopy type on woody and herbaceous understory plants. Significant differences in fenced plots indicate that deer, rabbits and voles individually affect the understory vegetation, but deer are the dominant herbivore in the forest. Both fencing and canopy type influence the cover of understory plants, with significantly higher plant cover in fenced plots beneath mixed or exclusively deciduous canopy. Few species have been extirpated from the forest, but several are confined to areas beneath high densities of greenbrier that form natural enclosures.

FIRE ISLANDS' WHITE-TAILED DEER POPULATION MONITORING AND IMMUNOCONTRACEPTION PROJECT 1998-2003

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The white-tailed deer (*Odocoileus virginianus*) population on Fire Island, NY has experienced an increase within the past 25 years. Today, the population is presenting a series of changes and challenges for visitors and residents of Fire Island, its constituents, and the National Park Service (NPS). As a result, inter-agency efforts are being made to help maintain a deer population near a sustainable carrying capacity. With assistance from the Humane Society of the United States (HSUS), the NPS has been able to implement an annual, deer immunocontraception project. By injecting does with a contraceptive vaccine known as PZP (Porcine Zona Pellucida), conception is prevented,

thereby limiting the number of fawns born each year. The NPS also collaborates with the State University of New York-School of Environmental Science and Forestry (SUNY-ESF) to monitor and estimate deer population from year to year through a distance-sampling statistical method. Data colleted from 1998-2003 reveals a steady decline in the islands overall deer population.